IN THE CLAIMS:

1. (Previously presented) A method comprising:
detecting atrial fibrillation;
measuring hemodynamic performance during atrial fibrillation; and
enabling therapy based on the measured hemodynamic performance;
wherein enabling therapy comprises determining whether hemodynamic compromise is present based on the hemodynamic performance during fibrillation, enabling the therapy when hemodynamic compromise is present, and disabling therapy when hemodynamic compromise is not present.

2. (Original) The method of claim 1, further comprising delivering the therapy when the therapy is enabled.

3. (Original) The method of claim 1, wherein the therapy includes at least one of drug delivery, electrical stimulation, modification of ongoing electrical stimulation, and a combination of drug delivery and electrical stimulation.

4. (Original) The method of claim 3, wherein the therapy is atrial defibrillation therapy.

5. Cancelled.

6. (Previously presented) The method of claim 1, further comprising storing information about the hemodynamic compromise.

7. Cancelled.

8. (Previously presented) The method of claim 1, wherein determining whether hemodynamic compromise is present further comprises:

measuring a hemodynamic performance baseline during normal sinus rhythm;

comparing the hemodynamic performance during fibrillation to the hemodynamic performance baseline to determine whether a change in hemodynamic performance has occurred; and

determining presence of hemodynamic compromise when the change exceeds a threshold.

9. (Original) The method of claim 8, wherein the hemodynamic performance baseline and the hemodynamic performance during fibrillation are measured using at least one hemodynamic performance parameter.

10. (Original) The method of claim 9, wherein the hemodynamic performance parameter includes at least one of electrogram (EGM), electrocardiogram (ECG), atrial pressure, ventricular pressure, arterial pressure, flow, pulmonary venous flow, acceleration, atrial dimension, ventricular dimension, thoracic impedance, intramyocardial impedance, velocity, QT interval, ST segment, blood oxygen content, myocardial oxygen consumption, change in right ventricular pressure versus time (dRVP/dt), and MVO2/PO2.

11. (Original) The method of claim 9, wherein the hemodynamic performance baseline and the hemodynamic performance during fibrillation are each measured using a combination of at least two hemodynamic performance parameters.

12. (Original) The method of claim 8, wherein the threshold represents a specified minimum change in the hemodynamic performance during fibrillation compared to the hemodynamic performance baseline.

13. (Original) The method of claim 12, wherein the threshold is expressed as an absolute change in hemodynamic performance.

14. (Original) The method of claim 12, wherein the threshold is expressed as a percentage change in hemodynamic performance.

15. (Original) The method of claim 12, wherein the threshold is expressed as a rate of change in hemodynamic performance.

16. (Original) The method of claim 8, further comprising quantifying severity of hemodynamic compromise based on the measured hemodynamic performance during fibrillation.

17. Cancelled.

18. (Previously presented) A system for controlling application of therapy to a heart, the system comprising:

a first sensor that detects atrial fibrillation;

a second sensor that measures hemodynamic performance during fibrillation; and

a processor that determines whether hemodynamic compromise is present based on the hemodynamic performance during atrial fibrillation, and enables delivery of therapy when hemodynamic compromise is present and disables delivery of therapy when hemodynamic compromise is not present.

19. Cancelled.

20. (Original) The system of claim 18, wherein the processor stores information about the hemodynamic compromise.

21. (Original) The system of claim 18, wherein the therapy includes at least one of drug delivery, electrical stimulation, modification of ongoing electrical stimulation, and a combination of drug delivery and electrical stimulation.

22. (Previously presented) The system of claim 21, wherein the therapy is atrial defibrillation therapy.

23. (Original) The system of claim 18, wherein the second sensor further measures hemodynamic performance during normal sinus rhythm.

24. (Original) The system of claim 23, wherein the processor compares the hemodynamic performance during fibrillation to the hemodynamic performance during normal sinus rhythm to determine whether a change in hemodynamic performance has occurred, and to determine presence of hemodynamic compromise when the change exceeds a threshold.

25. (Original) The system of claim 24, wherein the hemodynamic performance during normal sinus rhythm and the hemodynamic performance during fibrillation are measured using at least one hemodynamic performance parameter.

26. (Original) The system of claim 25, wherein the hemodynamic performance parameter includes at least one of electrogram (EGM), electrocardiogram (ECG), atrial pressure, ventricular pressure, arterial pressure, flow, pulmonary venous flow, acceleration, atrial dimension, ventricular dimension, thoracic impedance, intramyocardial impedance, velocity, QT interval, ST segment, blood oxygen content, myocardial oxygen consumption, change in right ventricular pressure versus time (dRVP/dt), and MVO2/PO2.

27. (Original) The system of claim 24, wherein the hemodynamic performance during normal sinus rhythm and the hemodynamic performance during fibrillation are measured using a combination of at least two hemodynamic performance parameters.

28. (Original) The system of claim 18, wherein the threshold represents a specified minimum change in the hemodynamic performance during fibrillation compared to the hemodynamic performance during normal sinus rhythm.

29. (Original) The system of claim 28, wherein the processor quantifies severity of hemodynamic compromise based on the measured hemodynamic performance.

30. (Original) The system of claim 18, further including a telemetry device for wireless transmission of a message when hemodynamic compromise is present.

31. (Original) The system of claim 18, further including a telemetry device for wireless transmission of a message upon delivery of therapy.

32. (Previously presented) A system for controlling application of therapy to a heart, the system comprising:

means for detecting atrial fibrillation;

means for measuring hemodynamic performance during fibrillation;

means for determining whether hemodynamic compromise is present based on the measured hemodynamic performance;

means for enabling delivery of therapy when hemodynamic compromise is present; and

means for disabling delivery of therapy when hemodynamic compromise is not present.

33. (Original) The system of claim 32, wherein the therapy is atrial defibrillation therapy.

34. (Original) The system of claim 32, wherein the therapy includes at least one of drug delivery, electrical stimulation, and a combination of drug delivery and electrical stimulation.

35. (Original) The system of claim 32, wherein the hemodynamic performance is measured using at least one of electrogram (EGM), electrocardiogram (ECG), atrial pressure, ventricular pressure, arterial pressure, flow, pulmonary venous flow, acceleration, atrial dimension, ventricular dimension, thoracic impedance, intramyocardial impedance, velocity, QT interval, ST segment, blood oxygen content, myocardial oxygen consumption, change in right ventricular pressure versus time (dRVP/dt), and MVO2/PO2.

36. (Previously presented) A method of controlling application of therapy, the method comprising:

programming a time period to automatically deliver the therapy;

measuring hemodynamic performance at the programmed time period;

determining whether hemodynamic compromise is present at the programmed time period based on the measured hemodynamic performance; and

enabling delivery of therapy when hemodynamic compromise is present; and

disabling delivery of therapy when hemodynamic compromise is not present.

37. (Original) The method of claim 36, wherein determining whether hemodynamic compromise is present includes detecting a specified minimum

change in hemodynamic performance measured at the programmed time period compared to hemodynamic performance measured during normal sinus rhythm.

38. Cancelled.

39. (Original) The method of claim 36, wherein the fibrillation is atrial fibrillation.

40. (Currently amended) The method of claim ~~40~~ 39, wherein the therapy is atrial defibrillation therapy.

41. (Original) The method of claim 40, wherein the therapy includes at least one of drug delivery, electrical stimulation, modification of ongoing electrical stimulation, and a combination of drug delivery and electrical stimulation.

42. (Previously presented) A computer-readable medium containing instructions for causing a processor to:

detect fibrillation;

measure hemodynamic performance during fibrillation;

measure hemodynamic performance during normal sinus rhythm;

compare the hemodynamic performance during fibrillation to the hemodynamic performance during normal sinus rhythm to determine whether a change in hemodynamic performance has occurred;

detecting presence of hemodynamic compromise when the change exceeds a threshold;

enable delivery of therapy when hemodynamic compromise is present; and

disable delivery of therapy when hemodynamic compromise is not present.

43. (Previously presented) A method comprising:

detecting atrial fibrillation;

measuring hemodynamic performance during atrial fibrillation; and

enabling therapy based on the measured hemodynamic performance;

wherein enabling therapy comprises determining whether hemodynamic compromise is present based on the hemodynamic performance during fibrillation, enabling the therapy when hemodynamic compromise is present, and disabling therapy when hemodynamic compromise is not present, and

wherein determining whether hemodynamic compromise is present further comprises:

measuring a hemodynamic performance baseline during normal sinus rhythm;

comparing the hemodynamic performance during fibrillation to the hemodynamic performance baseline to determine whether a change in hemodynamic performance has occurred; and

determining presence of hemodynamic compromise when the change exceeds a threshold for at least a predetermined minimum time period.